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ABSTRACT

This study examines the perceptions of middle school teachers at the Miami Shores/Barry University Charter School (Florida) toward using computers in a classroom environment for teaching. A purposive sampling technique was used to select the school and the teachers involved in the study. A constructivist approach was used to understand the perceptions of the teachers about computers and computer-related applications in their classrooms. All participants were interviewed about their perceptions of computers and were observed using them in their classrooms. Kvale's six steps of analysis method was used for the interview analysis. The data revealed an overlying theme of using computers as tools for different purposes. Computers are perceived as teaching tools, classroom management tools, and communicative tools. (Author/MES)

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Perceptions of Teachers at Miami Shores / Barry University (MSBU) Charter School of Using Computers in their Classrooms for Teaching

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Abstract: This study is about the perceptions of middle school teachers of using computers in a classroom environment for teaching. A purposive sampling technique is used to select the school and the teachers involved in this study. A constructivist approach is used to understand the perceptions of the teachers about computers and computer related applications in their classrooms. All participants were interviewed about their perceptions of computers and observed about how they use them in their classrooms. Kvale's six steps of analysis method was used for the interview analysis. The data analysis revealed an overlying theme of using computers as tools for different purposes. Computers are perceived as teaching tools, classroom management tools, and communicative tools.

Introduction

"I see them [computers] as excellent tools that is very necessary in conveying the main math concepts. In a society in which everything is computerized, I feel it is very necessary to have them in the education unit, in your classroom, exposing students to what is around them. They're in their homes, therefore they should be in the classroom as well to emphasize and further explore all the advantages of using a computer" said Ms. Smith, one of the math teachers at the Miami Shores/Barry University Charter School, during her interview. With almost 12 years of experience, she was one of those teachers who dedicated herself to her profession and students. During our interview, she showed me her classroom, her computers and some of the projects her students done in the past. It was obvious that she was able to integrate computers into her teaching activities very successfully and she was using them as "excellent teaching tools" in her classroom. Then, I wondered how many teachers perceived computers as she did, and how many are able to integrate them into their curricula successfully.

Purpose of This Study

The main purpose of this study is to understand and explore the perceptions of middle-school teachers about computers and computer applications in a classroom setting. The study focused on the following research question: "What is the perception of middle-school teachers of using computers and computer applications in their classrooms for teaching?"

For the purpose of this study, teachers at the Miami Shores/Barry University (MSBU) Charter School have been selected. MSBU Charter School, established in 1996, is a middle-school in Miami Shores, FL.

Background

The promise of today's government for the future of our schools is that "every classroom in America must be connected to the information superhighway with computers and good software and well-trained teachers" (President Clinton, State of the Union, January 23, 1996). Since 1996, schools all around the nation have been

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actively trying to connect to the information superhighway with computers. In their book, *Fostering the Use of Educational Technology*, Glennan and Melmed (1996) indicate that the growth in use of technology by schools is strong; schools are adding equipment and developing connections to the national information infrastructure at a high rate. The expended penetration of computers in schools is projected to continue, they say.

A nationwide survey, conducted by the National Center for Education Statistics in 1994, shows that there was about one computer for each 125 students in the nation's public schools in 1983. By 1995, there was a computer for each nine students. In the same year, schools spent $3 billion on computer and network-based technology. There is no doubt that computer and computer related applications would be part of classroom teaching activities. As the backbone of our school system (Fullan, 1991), teachers will be the most influential people in using computers in classrooms and connecting their classroom with the information superhighway. However, studies show that there have not been many studies about teachers' perceptions of using computers. Without a clear understanding of teachers' perceptions of these new technologies, it is very difficult how to place them in a classroom. Some studies show that computers have not been used effectively because of the teacher-related issues.

Despite the rapid growth of computers in schools, surveys suggest that the average school make limited use of computers (Glennan & Melmed, 1996). The limited usage of computers in the classrooms may be related to several factors. A study on teacher perceptions and attitudes toward computers and computer-related teaching skills showed that level of experience and educational level of teachers are among the most important factors that shapes and affects perceptions of computers in teaching (Green, Kluever, Lam, Staples, & Hoffman, 1997). This study concluded that the teachers with the knowledge of computers and computer applications have a positive attitude toward computers in classroom teaching. Teachers with knowledge are able to see what computers can be used for and how to integrate it into classroom activities.

Perceptions of teachers of computers and computer related applications might be different form school to school and from state to state. A nationwide survey showed that 97% of the Florida's teachers see computers as powerful motivators to improve learning in comparison to 67% of teachers said the same thing in California. The same study indicates that computers are perceived as teaching tools and powerful motivators in schools. The level of knowledge, experience, and educational level of teachers are important factors that affect teachers' perceptions of computers.

Method

A constructivist approach is used to understand the perceptions of the teachers about computers and computer related applications in a classroom setting. The purpose of a constructivist inquiry is "understanding and reconstruction of the constructions that people initially hold, aiming toward consensus but still open to new interpretations as information and sophistication improve" (Denzin & Lincoln, 1998). Computers and computer related applications have been invading classrooms during 1990s and this invasion, as Glennan and Melmed indicate (1996), will increase in the future. Teachers have to find ways of integrating these new technologies in their classroom activities. Computers will bring new ways of teaching and learning activities. Teachers will have to understand and reconsider the way they teach and administer their classroom activities. They will have to reconstruct their teaching methods including these new technologies. From this perspective, to use a constructivist approach seemed appropriate for this study.

A purposive sampling technique is used to select the school and the teachers involved in this study. Miami Shores Barry University Charter School and teachers at this school are selected for this study. The school is established in 1996 with 60 sixth grade students. The student-computer ratio is 3.5 and this is a high ratio comparing to other schools in Florida. Three teachers were selected based on their use of computers in their classrooms from among the 12 teachers. The first participant was a female math teacher with 12 years of experience. The second participant was a male social studies teacher with two years of teaching experience. The third participant was a science teacher with six years of teaching experience.

Initially, the participants were asked verbally if they would volunteer in the study. Once they said yes, the researcher prepared a consent form to inform them about the purpose, process and conditions of the study.

The interviews were conducted during their teacher planning time in their classrooms. There were not students and other school personnel in the classrooms during interviews. Each interview took approximately 45 minutes. During this time, the researcher focused on the following question: What is your perception of using computers and computer related applications in your classroom for teaching? The interviews were tape-recorded and transcribed verbatim, and then the tapes were erased.

Data Analysis

Kvale's *six steps of analysis* method was used for the interview analysis. In the first step, the participants described how they perceived using computers in their classrooms. They talked about their feeling and experiences. In the second step, the researcher condensed and interpreted the meaning of what the interviewee described. For example, when one of the participants said she made her students to use a computer program to demonstrate their research findings, the researcher interpreted these comments as using computers as a visual tool to communicate the data. The interviewee agreed and said that was exactly what she meant. In the third step, the participants realized they have been using computers for several purposes in their classrooms. One of them mentioned that he never thought about computers as being classroom management tools, but he has been using them to keep track of his students' grade, attendance and other records. In the fourth step, the researcher interpreted the transcribed data alone. During this process, the researcher categorized data under different concepts and then looked relationships among these concepts. The fifth step (re-interview) and the sixth step (action) were not applied to this study because of the time limitations.

Results

The data analysis revealed an overlying theme of using computers as *tools* for different purposes. Computers are perceived as *teaching tools, classroom management tools, and communicative tools.*

Computers as teaching tools

It was obvious that computers have been perceived as teaching tools more than anything else by the teachers in this study. When asked, they gave detailed descriptions of how they used them as teaching tools. "I see them as an asset…as a teaching tool…as a method of research for students" said one of the participants. "I find that in my particular class, I am a math teacher, I find that without computers, it is hard to convey some visual concepts that computers allow you to do" said another participant.

The math teacher showed me some of the software she had downloaded on the workstations in her classroom. She was using Math Blaster as a "practice tool", as she described it. After she teaches main subject concepts, she asks her students to open the program and do the practice questions. "That makes my class more

Another participant describes how he uses tutorials for teaching: "We have tutorial programs that the students can use them to better their skills in grammar, spelling and punctuation…The computer has a lot to offer and the students can learn from the computer by using it as often as possible". His perception of computers as a teaching tool was based on using them as tools, which guide and help students to learn by themselves. He believes that computers can help students to learn by themselves with little help from teacher.

Computers as classroom management tools

While computers have been perceived as teaching tools, they also have been perceived as classroom management tools. The participants seemed fully aware of the potential that computers can bring them in managing their classroom activities. "It [computer] lets you to keep records of grades, lets you keep track of the students' work" said one of the participants. She had her own workstation by her desk and students were not allowed to use her computer. On that computer, she kept works of her students in different folders. She called these folders "electronic portfolios".

At Miami Shores/Barry University Charter School, teachers are required to contact parents periodically to report the progress of their child. One of the participants mentioned that she used electronic mail to inform parents who had electronic-mails at their homes about their child's progress. However, she calls parents and lets them know that she sent e-mail. It was a nice way of combining two media to report the progress of the students.

Computers as communicative tools

Each classroom had an Internet connection to the World Wide Web (WWW) at MSBU Charter School. Teachers are encouraged to use them as much as they can to integrate classroom activities with materials on the

World Wide Web. The school administration especially emphasizes the importance of communicating with other students around the nation and world via Internet. Teachers seemed to understand the potentials of using the Internet for classroom activities. "Nowadays, with the Internet, the students can access various areas and do research for projects that they are working on...that opens a wide range of doors for them as far as interacting with a lot of information" said one of the participants. He was requiring his students to go on the Internet and do some search for their research projects.

With the doors opened to schools via World Wide Web, it was not surprising to see them being used as communicative tools in the classrooms. They can let students and teachers interact across the miles and share information. It seemed that social science teachers have more opportunities for their students to communicate over the Internet with other students around the nation.

Computers are also perceived as a means of communication tool between the teacher and students in the same classroom. One participant expressed his future vision of using computers as follows: "You can probably use them as a means of communications. For instance, if you have them [students] to write a term paper, you can ask them to e-mail it to you instead of having a hard copy. You can have them to communicate with you using the Internet if they have questions. You can do all of it by giving them access to an e-mail account".

Although the MSBU Charter School did not have a Local Area Network (LAN) yet, the perceptions of teachers about using computers as a communication tool were very obvious and clear.

Discussion

According to the Teachers and Technology Survey, conducted on behalf of the Tenth Planet Explorations, Inc.,.by Field Research Corporation, an independent market and opinion research organization located in San Francisco, California, 97% of Florida teachers say that they see computers as "powerful motivators to DiCamillo, 1998). Kluever, Lam, Staples and Hoffman (1995) indicate that computers are perceived as instructional tools and used in many different ways for this purpose, from drill and practice activity to simulation of events.

This study found out that teachers perceived computers as teaching, classroom management and communication tools. When put together, these three findings are tools to improve learning of the students. Computers have a direct impact on teaching activities of teachers and their teaching methods. They have to find new ways of integrating these technologies into their curriculum. That forces them to develop new instructional methods, combining their knowledge with the power of these technologies. This way, computers will be used as instructional tools to improve learning.

The findings of this study may help teachers and school administrators to see computers as powerful tools of teaching. When properly used, computers are powerful tools to motivate students to learn. As classroom management tools, computers make it easier for teachers to keep track of their students' work by creating electronic portfolios. As communication tools, computers have the potential of allowing teachers, students and parents to communicate with each other over the Internet.

To conclude, I would like to mention that the teachers at MSBU Charter School have strong support from their school administrators. School administration provides all the equipment, hardware and software, for teachers to use in their classrooms for teaching. That may have an affect on the perceptions of the participants of this study. During the interviews, participants mentioned how their administrators supported and encouraged them in using computers. That brings us to another research question: What are the factors that affect the perceptions of teachers of using computers in the classroom for teaching? That is a subject to be investigated in the future.

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